IN THE CIRCUIT COURT OF THE STATE OF OREGON
FOR THE COUNTY OF MULTNOMAH

The Estate of Jesse D. Williams, by and through Mayda Williams, personal representative,	Plaintiff,	)
v.		) No. 9705-03957
PHILIP MORRIS INCORPORATED,	Defendant.	)

DEPOSITION OF STEVEN L. PRIMACK, M.D.
Taken on behalf of Plaintiff

* * *

BE IT REMEMBERED THAT, pursuant to the Oregon Rules of Civil Procedure, the deposition of STEVEN L. PRIMACK, M.D., was taken for the purpose of perpetuation of testimony before CHERYL A. LORD, a Certified Shorthand Reporter for Oregon, a Registered Professional Reporter, and a Certified Realtime Reporter, on Friday, March 19, 1999, commencing at the hour of 4:30 PM, at Oregon Health Sciences University, 3181 S.W. Sam Jackson Park Road, South Hospital Radiology Conference Room, Portland, Oregon.

APPEARANCES:

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ALSO PRESENT: Ms. Sally Merriam and Mr. Mike Walker, video technician

* * *

(DEPOSITION EXHIBITS NOS. 1-4
were marked for identification.)

MR. GAYLORD: All right. My name is Bill Gaylord. I'm a lawyer for the estate of Jessie Williams, and I'll be asking the first set of questions of Dr. Primack.

Counsel?

MR. SIRRIDGE: Yes. My name is Pat Sirridge, and I represent Philip Morris, and I'll be asking the second set of questions.

MR. GAYLORD: Dr. Primack, will you state your name, your full name.

THE WITNESS: My name is Steven Lloyd Primack.

MR. GAYLORD: And I'm going to have the court reporter swear you, and she'll probably have you spell your name for the record also, and then we'll proceed with questions.

STEVEN L. PRIMACK, M.D.,
having sworn or affirmed to tell the truth, was examined and testified as follows:

THE WITNESS: Steven Lloyd Primack, P-R-I-M-A-C-K.

DIRECT EXAMINATION

BY MR. GAYLORD:

Q. Okay. Dr. Primack, let's start by explaining why I'm calling you Dr. Primack.
Are you an M.D.?

A. I am an M.D., yes.

Q. And it won't be apparent from the record that we're making on the video, so I'll ask you to tell the jury where we are this afternoon.

A. We're at Oregon Health Sciences University in a radiology conference room.

Q. Okay. So for those of us native to the Portland area, this is the Oregon Medical School?

A. Yes.

Q. And it is Friday afternoon, the 19th of March, 1999. It's about 20 minutes to five, after a few delays getting ourselves started this afternoon.
Is this your place of work?

A. Yes, it is.

Q. Tell the jury what kind of a medical doctor you

are and how you became one.
A. I'm a diagnostic radiologist with a subspecialty in chest radiology. I went to undergraduate school at Purdue University, majored in engineering, went to medical school at the University of Chicago, graduated medical school in '87, residency at Duke University -- an internship following medical school, then residency in radiology at Duke University.
Following the residency in diagnostic radiology, I became board-certified, then went to Vancouver, British Columbia, for two years for subspecialty training at the Vancouver General Hospital, and that was a subspecialty in chest radiology. And then subsequently I've been here for five years.
Q. Okay. I'm going to go over just a few of the highlights of that a little more slowly to be sure it's clear.
Your college was at Purdue University?
A. Yes.
Q. And medical school at University of Chicago.
You said you did a radiology residency at Duke University?
A. Yes.

Q. That's back in North Carolina?
A. Yes.
Q. And residency is the usual specialty training that physicians go through in order to become specialists in a given field like diagnostic radiology?
A. Correct.
Q. Okay. And then did you tell us that you went beyond the usual diagnostic radiology residency and did further specialty training?
A. Correct. Many radiologists following residency will go do subspecialty training in an area of interest, and I did two years of subspecialty training in chest radiology or thoracic radiology.
Q. Okay. And chest or thoracic radiology is the subspecialty of radiology that would include questions about lung cancer?
A. Yeah. The majority of the subspecialties related to lung imaging and all that, certainly a reasonable percentage of them is with lung cancer.
Q. Okay. You said you did that subspecialty training at the University of British Columbia?
A. Yes.

Q. Tell the jury what the University of British Columbia is in terms of its recognition or reputation in the field of chest radiology.
A. At the University of British Columbia, there's several hospitals affiliated with it. One of them is Vancouver General Hospital where I worked, and that is the primary referral center for all of British Columbia for pulmonary patients, whether that be lung cancer patients or pulmonary pathology, and worldwide, it has one of the highest ratings, both clinically and academically.
Q. And you came out of that program as a diagnostic radiologist with a subspecialty in chest radiology?
A. Correct.
Q. Then you told us that you've been here at Oregon Health Sciences University for five years?
A. It will be five years in June.
Q. And what's your position at Oregon Health Sciences University?
A. I'm an associate professor of radiology.
Q. All right. And is your position or your work here at the university specialized with respect

to chest radiology?
A. Yes.
Q. Would it be fair to say you are the chest radiologist on staff at Oregon Health Sciences University?
A. That's correct.
Q. In keeping with that subspecialty training that you've had and your practice in that subspecialty, do you belong to professional organizations related to your specialty?
A. I belong to several organizations. One of them is the Society of Thoracic Radiology, which is the subspecialty organization. I'm also in other general radiology organizations as well.
Q. Okay. Have you contributed to the body of medical literature and medical knowledge in your subspecialty area of chest radiology?
A. Yes. I've published I believe 36 articles all related to chest radiology.
Q. Okay. Let's move on, then, to the subjects that I want to spend just a little bit of time with you on this afternoon.

I guess one more preliminary question: We're doing this today and using the video camera and the court reporter services so that

we can present your testimony to the jury when you're not available next week. But I need to make the record clear.

Is it true that you are not available next week to be a testifying witness in the trial of our case?

A. That is correct. Next week is the annual meeting of the Society of Thoracic Radiology, so that's where I'll be.

Q. You've got plane reservations and you're leaving town tomorrow morning?

A. Yes.

Q. We appreciate your being available this afternoon, and let's talk about what I've asked you to be available for.

Did I just meet you yesterday for the first time?

A. Yes.

Q. And when I met you, did I ask you to review some films from the late Jessie Williams?

A. Yes, you did.

Q. And have you reviewed a series of x-rays, including plain films and CT scans for Jessie Williams?

A. Yes, I have.

Q. And did those include x-rays that were taken -- well, we have dates that I'm going to have the camera look at in a few moments, but in December of 1984, in March of 1986, in October of 1991, in January, February, and September of 1996, and I think some later ones after that, but I'm not going to talk about them particularly.

A. Yes.

Q. All right. And when we turn to the films that are up on the view box here beside you in a few moments, I'm going to have you tell the jury what you see and don't see on some of those films and make some comparative analyses of them.

But another preliminary question: Have you put up on the view box here copies as opposed to originals of some lateral films from Jessie Williams?

A. Yes. These are copy films.

Q. All right.

For our record, I'll represent that they have been marked by the court reporter as deposition exhibits. Exhibit 1 is a lateral view of the 12-11-84 film. Exhibit 2 is the

March 4, 1986, lateral view. Exhibit 3 is the October 28, 1991, lateral view. Exhibit 4 is the September 26, 1996, lateral view.

And you agree with what I've just said, Doctor?

A. Yes, I do.

Q. Okay. Before I have you use these copies of the x-ray films, I need to ask you some things about copies as opposed to originals.

Have you had the opportunity to compare these copies with the original films of the same shots?

A. Yes, I have.

Q. Can you tell us whether these copies are as good in terms of what they show and don't show as the originals in each case?

A. For the purposes of showing key points here, they're as good.

Q. All right. And have you also looked at the originals to satisfy yourself that everything I'm going to ask you about is -- would be true if you were looking at the originals instead of the copies?

A. Yes. I don't think it would make a difference.

Q. Okay. And did we discuss using the copies for

the reason that I may ask you to make some marks on them and we don't want to do that on the originals?

A. Correct.

Q. All right. One last question before I have you move your position and let the camera get situated to see what you'll show us on the films.

You're familiar with something called the posterior tracheal stripe?

A. Yes.

Q. Is that a term of radiology and chest radiology that is used from time to time?

A. Yes.

Q. Could you characterize that sign or that term in terms of its importance for diagnostic purposes generally speaking?

A. The posterior tracheal stripe is a finding that could be seen on the lateral view on the chest radiograph (phonetic), and as far as its importance, when there are abnormalities of it, it generally can be helpful, but there's -- it's really not a very sensitive nor specific area, and so I think there's certainly some benefit when there's an obvious abnormality of

it. In general, though, it is not that sensitive and not that specific for checking abnormalities.

Q. Okay. Something might be considered a soft sign?

A. We'd probably use the term not that accurate, not a very accurate sign.

Q. Okay. Not a very accurate sign.

Now, why don't you get in a position where you can talk about these films one by one, and I'll ask the camera operator to make sure that he can get focused and zeroed in on the films you're going to talk to us about.

First, where I'm going with this is, I'm going to ask you to compare the lateral films from 1984 to March 4, 1986, first off, just with respect to what we can see or not see in the way of the posterior tracheal stripe.

A. Okay.

Q. So go ahead and move into a position where you can show us that and use whatever is handy there to point with so that you can kind of stay to the side of the camera.

A. I think it would be best if I'm on this side of the film.

Q. Whatever you're comfortable with, that would be great.

Show us for the camera's purposes the two films that you're going to talk about.

A. Okay. So on your left is a film from 1984, on your right a film from 1986. And these are the lateral projections.

For orientation, the posterior aspect of the ribs, or behind the patient, are here, and this is the sternum or breastbone anterior, so the patient is facing to your left, and we're basically going to be looking at the posterior tracheal stripe.

If you can see, there's a black tube -- here you can see there's a stripe that comes down. We can follow this, and it would come down to, then -- at this point, it's part of the bronchus intermedius, which is basically the name of a bronchus that's going to the middle lobe and lower lobe on the right. But this is the posterior tracheal stripe.

And then it makes a bit of a bend here as we have branching, and then you see it posteriorly here as well. On the 1986 film, we also see a similar-appearing stripe. I notice

it's a bit easier to see higher up and you don't see it quite as well in this region. You see it better -- and the same -- I don't know how well that's projecting, but somehow the stripe is seen more superiorly.

A couple of differences -- and why the stripe may be slightly different between the two films may be that the patient is slightly rotated in different ways on both of these films. And the way we evaluate rotation is to look at the ribs, which are these structures here. It's a little confusing because there's both a left and right lung as well as left and right ribs that are superimposed.

But if I can orient you, densities that I'm outlining here, this is the diaphragm, and one of them would be on the right side and one on the left side. This bubble of black here, which is gas, is outlining the left side.

So if we follow the left diaphragm, we can show that the left ribs are the ones here, whereas the right diaphragm ends earlier. So the right ribs in this case are anterior, and the left ribs are going to be posterior, or more in the back.

However, in this case here, the right diaphragm extends further back, and then these are the right ribs, and these are the left ribs, so the patient, even though it's a slight difference in obliquity -- there's a slight difference, and that probably accounts for the subtle difference in the posterior tracheal stripe.

Q. Now, you used the word obliquity.
Is that a word that comes from the word oblique?

A. Yes. So basically, the patient is turned just slightly differently between those two films.

Q. So it has to do with the angle that the patient is to the x-ray beam?

A. Correct.

Q. And I want to be sure what you were telling us on the left film there, the 1984 film.
Are you saying that you can tell from that film, Exhibit 1 on the left, that the patient is turned a little bit so that the patient's right side is further to our left than the patient's left side?
MR. SIRRIDGE: Objection, leading.

Q. BY MR. GAYLORD: What is it you're telling us

with respect to the patient's rotational position when you look at the ribs on this left film?

A. Simply to point out that with just very subtle differences in rotation, some of the structures that we see more centrally are going to look slightly different as well, because the beam of the x-ray has caught them at a slightly different angle.

Q. Okay. Are there differences to your trained eye in terms of how bright or sharp various structures are in the central area of the 1984 versus the 1986 lateral film?

A. I don't think there's a significant difference.

Q. Okay. With respect to the thing that has been called to us the posterior tracheal stripe, do you see differences in its brightness or how visible it is on these two films?

A. I think they're similar. As you can tell, this film is a little bit darker than this film. This structure here is a little bit whiter, if that's what the question is. So visibly, the films are of slightly different darkness or whiteness, but as far as the posterior tracheal stripe, there's no difference.

Q. Okay. With respect to whatever differences are visible between these two films to your trained eye, are they the kinds of differences that have to do with the quality of the film or the patient's position as opposed to any diagnostic considerations?

A. Yeah. There's definitely no difference as far as diagnostic information. As I mentioned, there's a slight difference because -- in obliquity. Any other very subtle findings -- if I can show the posterior tracheal stripe here, as we follow it down and focusing on this area, it does look different than this area in '86.

And as far as description of how that looks different, and I'm not sure how that's going to show on the video, but I think the differences that we see are within reason for the -- with the change in obliquity.

Q. I think after we go through a little bit more of the film, we'll put some marks on these copies so that we know where you're saying there may be some appearance differences.

Let's move on to Exhibit 3, which is the October 28th, 1991, lateral film. Have you

also compared that copy to the original to assure yourself that it's for all intents and purposes the same film?

A. Yes.

Q. And have you looked at that film with your trained eye as a diagnostic and chest radiologist to see whether or not there's any significant sign or change that you can tell between these films?

A. Okay. Again, on position, we can see on this film from 1991 that the ribs line up on each other. So this film was taken with the patient as really a true lateral. We see the ribs lining up very well, as compared to here, where there's a slight difference in where the ribs are located on the lateral view, implying that there's some obliquity from the x-ray beam.

So technically, there's a slight difference. If we go to the posterior tracheal stripe and follow it down, again, we can see that very well in that area pointed to before. There's an area in this region, you don't see it quite as well. And if we go back to the '86 film, we don't see it quite as well in that area; and then back to the '84 film, same

thing. I think it's more difficult to appreciate that area. Given slight differences in obliquity between these films, there's no significant difference from 1984 to 1986 to 1991.

Q. All right. Now, I needed to ask one more preliminary question that I skipped over so far, so let me go back to it. I'm required to ask you to refrain from expressing any opinions unless you hold those opinions to a reasonable medical probability.

And have you done that so far?

A. Yes.

Q. And as we go forward, if I don't happen to use those words, it's intended or implied in my question. All right?

A. Okay.

Q. Have you also -- before we go on to the last film, have you also looked at the other available films, original and copy x-rays, from these dates, which is to say, I guess, the PA views of each of these films?

A. Yes, the PA views.

Q. And have you read -- as a diagnostic radiologist reads films, have you read all of

this series of films and made your own best, most thorough, careful interpretation of them?

A. Yes.

Q. Have you formed an opinion to a reasonable medical probability whether there is any material difference between any of these three sets of films from December '84, March '86, and October '91 with respect to any evidence of a lung tumor?

A. I don't see any evidence of a lung tumor, and I don't feel there's any change between those films.

Q. All right. Now, in the course of my talking with you yesterday about these subjects, did I also show you a board, a foam-core board, which I think is defendant's Exhibit 624 in this case? But in any case, it was a board with three different lateral films mounted on it in photographic form and with markings on an area on a couple of them suggesting a point of focus by somebody.

A. Yes. You showed me that board.

Q. Okay. And have you been provided with a transcript of testimony from another radiologist who has testified in this case?

A. Yes.
Q. Now, I'm not going to ask you to address any comments directly to the testimony of another witness, but I'm going to ask you, in your reading of these films and the opinions that you've expressed this afternoon, do you have an awareness of a location at which suggestion has been made that there's evidence for a tumor on the October '91 film?
A. Yes.
Q. Okay. Can you, I think, just so that the jury, when they see these copy films more directly, so that they can orient themselves to the location that you've been talking about -- would you put a mark in whatever kind of ink will show up, maybe an arrow, just pointing to the location where this question about some abnormality in the posterior tracheal stripe arises?
A. Okay. So the 10-28-91 film was one of the films that was on the poster, and there was an area marked in this region there.
Q. All right.
A. Does that show up well?
Q. All right.

I'm being told we can see that on the video.

All right. Is that an area that you have particularly focused attention on and carefully compared to the other films?

A. Yes.

Q. And do you have an opinion to a reasonable medical probability as a diagnostic radiologist and a subspecialist in chest radiology whether that area supports any diagnosis of an abnormality suggestive of or representative of or evidence of a lung tumor?

A. I do not think it represents a lung tumor.

Q. And just so I'm not being too careful with those words, any kind of tumor whatsoever, in other words, do you believe there's any evidence on any of these three films of cancer?

A. No, I do not.

Q. Now, have you looked at the subsequent films? And we've got one of them up there, Exhibit 4, a lateral view from September 26, 1996.

A. Yes, I've looked at that.

Q. All right. Without going into great detail, do you find evidence to support an argument or a diagnosis of lung cancer in that September 1996

film?
A. Yes, there's evidence for that.
Q. Okay. Again, maybe we can do kind of a short form of describing to the jury what you mean by evidence of lung cancer on that film.
A. So the evidence of lung cancer on this film is going to be at the lower portion of the trachea. Instead of seeing a thin line where the trachea then forms what I'd call the bronchus intermedius, which is a branch in the right lung -- instead of seeing a line, we see this thick opacity, which would be consistent with tumor.

So the bulk of the tumor is here. Additional information at this time is on the PA view, where we can see obvious tumor. But on the lateral view, the bulk of the tumor is in this region.
Q. Okay. I think rather than going through the whole review of the PA views, because this is intended to be rebuttal testimony and a narrow subject matter that doesn't have to go through everything, let me just ask you a question about your review of the PA views.

Have you compared PA films for early 1996

and late 1996?
A. Yes.
Q. And now, in the September and October 1996 time period, you're aware that a diagnosis of lung cancer was made and other steps were taken through the usual other specialties that get involved at that point with pulmonology and pathology and oncology and so forth?
A. Yes.
Q. Have you looked retrospectively at the January or February 1996 films, both views, and identified whether or not you can see evidence of some tumor in the early 1996 films?
A. Yes, I've looked at that, and the tumor is evident on those films.
Q. Okay. In retrospect with what we know from the fall of 1996, have you made any comparison between the early films, January 1996, and the September '96 time period with respect to any question about the progression or growth of this tumor in the time in between?
A. Yes. I've compared those films, and the growth is fairly rapid. It certainly is not a slow-growing tumor in that time period from January to September.

Q. Okay. Can you characterize that rate of growth you can discern in retrospect from the January films to the September films in terms of relative to average lung cancer?
A. From my experience with the radiographic appearance of lung cancer, that would be a relatively rapid growth of the lung cancer.
Q. I think I have a couple of questions I skipped over earlier and should have covered in the first place.
I don't think I asked you: Are you board-certified?
A. Yes, I am.
Q. And are you licensed to practice in the state of Oregon?
A. Yes, I am.
MR. GAYLORD: Thank you, Dr. Primack. Your witness.
MR. SIRRIDGE: Thank you.

CROSS-EXAMINATION

BY MR. SIRRIDGE:
Q. Dr. Primack, my name is Pat Sirridge. We haven't met, but I'm going to ask you a few questions this afternoon.

A. Okay.
Q. Let me first ask you: When were you contacted first by Mr. Gaylord?
A. I believe I was contacted Wednesday, and I met Mr. Gaylord on Thursday the first time.
Q. And did you meet with anyone else besides Mr. Gaylord?
A. Yes. Charles -- and I'm blanking on your last name. (To Mr. Tauman.) I apologize.
Q. Now, have you met any of these gentlemen before?
A. I have not.
Q. You've not done any medical-legal work for them?
A. I have not.
Q. Was that the first time you reviewed the chest films and the CT scans, last night?
A. Actually, Charles brought them on Wednesday, so two days ago was the first time I looked at them.
Q. Two days ago.
Have you reviewed the medical records in this case?
A. I have not reviewed the medical records, no.
Q. Would you agree that clinical information is

important in making medical diagnoses?
A. Yes, clearly.
Q. Now, Doctor, as I understand it from your background here, your curriculum vitae, you finished your radiology training seven years ago?
A. My radiology residency seven years ago, and then I did the fellowship.
Q. Then you did the fellowship in thoracic radiology, and you finished that five years ago?
A. Correct.
Q. Then you came to Portland and joined the faculty here in 1994?
A. Yes.
Q. And you're an associate professor here?
A. Correct.
Q. Do they have the normal ranks here of assistant, associate, and full professor?
A. Yes.
Q. Doctor, who was the head of thoracic radiology here before you joined?
A. Chris Salmon.
Q. And where is Dr. Salmon now?
A. Dr. Salmon is, I believe, in Johnson City.

Q. Dr. Primack, are you a member of the American College of Chest Physicians?
A. I am not.
Q. Have you been appointed to any special professional committees that work on the particular aspects of the diagnosis of lung cancer?
A. No.
I think I'll sit down here if that's okay, if you're going to ask a few more questions.
Q. That's fine.
Dr. Primack, would you agree that there's interobserver variability in radiology?
A. Yes.
Q. And that can happen even among experienced radiologists?
A. Yes.
Q. And isn't experience important in making diagnoses in chest radiology?
A. Experience is important, yes.
Q. And aren't differences in experience -- can differences in experience be the reasons why radiologists differ in their interpretation of films?
A. It can be one of the reasons, yes.

Q. Do you know any of the treating radiologists in this case?
A. Sorry. I don't understand "the treating radiologists."
Q. The radiologists who originally made the diagnoses on Mr. Williams.
A. Looking through the reports, yes, I'm aware of who those radiologists are, some of them. I can't remember exactly which ones offhand.
Q. Do you know if any of them are members of the Society of Thoracic Radiology?
A. I do not believe they are, and I can't say that a hundred percent, but I do not think so.
Q. Dr. Primack, how many chest x-rays do you review a day?
A. Typically between 100 and 150 chest x-rays a day.
Q. Per day?
A. Per day.
Q. And for how long have you been doing that?
A. As a faculty member here, for just under five years.
Q. Just under five years.
Let me ask you, Dr. Primack, when you reviewed these films, did you know that

Mr. Williams was experiencing a hemoptysis in October of 1991?

A. When I first looked at these films, I did not know that, no.

Q. And were you subsequently told that?

A. Yes.

Q. And is a hemoptysis a serious sign for clinical physicians with regard to possible respiratory disease and cancer?

A. Hemoptysis can be related to many possibilities, bronchitis, bronchiectasis, or cancer. There are many possibilities.

Q. So it can be related to cancer?

A. Yes.

Q. Are you aware that the treating physician at the time in October of 1991 noted in his record that he needed to rule out tumor?

A. That I'm not -- again, I did not read the medical charts with that.

Q. Doctor, can you see -- I noticed up there that you put the films from '84, '86, 1991, and 1996.

Is there an abnormality on either the January or February 1996 lateral film?

A. Yes, there is an abnormality.

Q. Okay. And where is the abnormality?
A. The abnormality -- point it out?
Q. Is it anywhere close to where the arrow is on the 10-28-91 picture?
MR. GAYLORD: Object to the form: anywhere close.
Q. BY MR. SIRRIDGE: Excuse me. I'll rephrase that.
Dr. Primack, is the abnormality that you see and have seen on the January and February films of 1996, is it in the same location as your red arrow that you have marked on the 10-28-91 film?
A. I do not believe that the majority of the abnormality is there. If I could point to the '96 film here, the majority of the abnormality is in this region here.
If we use as a landmark this black hole here, which is the left upper lobe bronchus, you can see that as just above where the bulk of the abnormality is. Some of the abnormality does extend up to this region where the arrow was placed on the poster board exhibit, and also in this '91 film that I did, the arrow was in this area.

And again, just to use this as a reference point, this black hole, if that is able to be visualized as the left upper lobe bronchus, the bulk of the abnormality in the followup films is really just in this region here just beneath where that arrow is. And the January '96 film shows a similar finding as the September, except it's not quite as large.

Q. I see. Could you tell me, Dr. Primack -- could you show to the jury where the right upper lobe bronchus is on the 1986 film?

A. On the 1986 film?

Q. Correct.

A. The right upper lobe bronchus is going to be in this region here. Again, what I'm outlining is not sharply defined, and one of the reasons for that is, on the best standards studies that we have, only about 50 percent of the time is the right upper lobe bronchus visualized on the lateral view very well, and that has to do with anatomic boundaries adjacent to it, but it would be somewhere in this region in here.

Q. Dr. Primack, isn't there sort of a triangular blackened space right in this region on this film, and wouldn't that be the right upper lobe

bronchus?
A. That would be in the region of it. To specifically outline the right upper lobe bronchus, I don't believe we can do that on this film.
Q. But is there a darkened area that is sort of triangular-shaped right in this location?
A. This area in here.
Q. Right here.
Is that where the right upper lobe bronchus would be?
A. It would be in that region, but I do not believe that we can outline it. But, yes, it would be in that region.
Q. Don't you see on the next film in 1991 a banana-shaped darkened structure which is different in shape than the blackened triangular structure in 1986 in that same location?
A. There is a similar blackened structure in that area, yes.
Q. And it is a different shape, isn't it, than the blackened structure in that location in 1986?
A. It's a different shape, but in my opinion, the difference in shape can be accounted for by the

differences in obliquity. One of the reasons we hung up this film from 1984 is, I believe if we look at the 1984 film and compare it to the 1991 film in that region, it is also a different shape. And where that arrow is placed -- I can switch over to the '91 film -- I believe that the arrow was pointing on the exhibit to this small tear-drop-shaped opacity here, which we don't see that well on the '86 film in that region, but if we go to the 1984 film, there is something that looks somewhat tear-drop-shaped that does not look different from the 1991 film.

Q. Dr. Primack, are these good-quality films?

A. These are good-quality films, yes.

Q. Is there such a great difference between the films from 1984, 1986, and 1991 that you cannot compare them?

Is that what you're saying?

A. That is not what I'm saying. I'm saying that one must account for the differences in technique when interpreting the films.

Q. And how much of differences in technique? Is there a percentage of rotation, or is there some sort of estimate you can make about how

much they are different?
What is the range of error, I guess is what I'm asking?
A. Any estimate I make would be guesswork, but as I pointed out with the ribs, there clearly is a difference in positioning of the patient.
Q. Doctor, can I call your attention to the 10-28-91 film and ask whether there is a break in the line of the tracheal stripe as it reaches the right upper lobe bronchus area there as compared to where the stripe is in March of 1986?
A. Compared to March of 1986, the stripe looks slightly different. Again, given the differences in the obliqueness of the patient, I do not think that's a significant difference. And partially, having the luxury of the 1984 film, I think that stripe looks very similar, if not identical on the 1984 film.
Q. But the 1984 film is a quite light film, isn't it, light in its impression, a lighter film?
A. In reality, the lightness -- and lightness, you mean it looks more white too?
Q. Correct.
A. The lightness actually should have no bearing,

and if anything, you know, the obliquity is actually much more important than the lightness, basically.

Q. Was there any indication -- excuse me. Let me start again.

Have you seen the actual reports of the radiologist who looked at these films the first time?

A. I read through them. I don't know if I could recall the exact dictations. Again, I just became involved with this two days ago.

Q. Was there any indication in any of those reports that the positioning was a problem in taking the x-ray or that it wasn't a high-quality x-ray?

A. I would have to look at the reports again, but I do not believe that was in the report.

Q. Okay. Now, Doctor, is there a change in the posterior tracheal stripe in the film from January of 1996?

A. Excuse me. I lost part of my microphone here, so I got distracted.

Q. That's all right. You don't have that film up there, but I believe you indicated to Mr. Gaylord that you had reviewed it.

Is there an abnormality in the posterior tracheal stripe in the January 1996 film?

A. Yes, there is an abnormality there.

Q. And did you look at that abnormality in 1996 and go back and look at the film in 10-28-91 in that same location?

A. Don't understand the question: in that same location.

Q. Let me try again.

You found an abnormality in the posterior tracheal stripe in the January '96 film?

A. Yes.

Q. Did you go back and look at the film in '91, this film right here, in the location where the abnormality is in '96 to determine if there are any findings that are similar in '91?

A. Yes. I did go back and compare those films.

Q. And is that -- is it in the same region that you have put the red arrow there that you went back and looked?

A. No. As I stated previously, the bulk of the abnormality is similar. The distribution is similar to September '96, and that is, the thickening is much more significant or more inferior or below that.

Q. Now, you indicated at the beginning of your testimony, Dr. Primack -- you made some comments about the posterior stripe and its use in chest radiology?
A. Yes.
Q. Now, you wouldn't ignore an abnormality in that area if you were looking at a chest film, would you?
A. No, I would not.
Q. It's important enough for you as a chest radiologist to focus on that area of the posterior tracheal stripe, isn't it?
A. That would be one area that I would look at, yes.
Q. And is the rotation between '84 and '91 within the normal limits that will allow you to compare those three films?
A. Yes.
Q. And is that true also of the January, February, and the September '96 films?
A. I believe so. I'd have to pull out those other films to answer that question.
Q. You indicated, Doctor, that you thought there was a relatively rapid growth between January and September of 1996?

A. Yes.
Q. Relatively rapid compared to what?
A. As I believe I mentioned just in my experience in reviewing patients with lung cancer on the radiographs.
Q. Are you familiar with the growth rate of a cancer cell type called adenosquamous carcinoma of the lung?
A. I'm aware of that. I don't think I'd be ready to talk about that right now. I think that's a little out of the realm of the discussion of these films for today.
Q. Well, are you familiar with its growth rate?
A. I'm familiar that there's a wide range of adenosquamous cancer, and that is for sure, and adenocarcinomas tend to be -- have a range, but they can be very slow growing.

Squamous cell cancers are also slow growing, and the combination of adenosquamous cell cancers -- again, there's a range with slow and fast, and I think there's such a range that an individual patient is going to vary.
Q. Doctor, we haven't talked much about the PA films for Mr. Williams from essentially these same dates, but you have reviewed those?

A. I have reviewed those, yes.
Q. Now, did you notice an abnormality on those films on the January 1996 film?
A. Yes. There was an abnormality.
Q. And was that abnormality in the paratracheal stripe area?
A. It was in the right paratracheal stripe region.
Q. Right paratracheal stripe area.
And in your opinion, was that the lung cancer which was later diagnosed in September of 1996?
A. That would have been related to lymphadenopathy related to the lung cancer.
Q. So I just want to get this straight: So it is your opinion that abnormalities were seen on both the lateral and the PA views in January of 1996?
A. That is correct.
Q. Do you know whether those abnormalities were described and identified by the treating radiologist?
A. I do not believe that they were. I'd want to look at the report, but from my memory, that was not the case.
Q. But it's your understanding that those reports

were read as normal?
A. Normal in respect to that area.
Q. Yes.
A. Yes.
Q. In that they were normal, that no one diagnosed an abnormality which led to other diagnostic procedures; is that right?
A. That is correct.
Q. Dr. Primack, thankfully, I only have a couple more questions.
Dr. Primack, isn't there a blind spot in the PA views, the chest films, where in the lower trachea that radiologists can miss cancers in that area?
A. That would be one of the blind spots. "Blind spot" meaning that it's more difficult to detect cancer in that region than others.
Q. Isn't it true that a slower-growing cancer can be present in the lower trachea for four years or more before it is diagnosed because of that blind spot?
A. That would be possible, yes.
Q. And are you aware of any literature which discusses the types of carcinomas which can grow in the lower trachea and can go

undiagnosed for periods of four years?
A. I couldn't quote you a specific article, but clearly, there are some tumors that are more commonly involved, involve the trachea and main bronchi.
Q. Isn't it true that mucoepidermoid carcinoma is one, tumors that can grow in the lower trachea and spread in that general area?
A. Mucoepidermoid would fall in that category, an extremely rare tumor.
Q. Are you familiar with a textbook by Drs. Fraser and Pare?
A. Yes, I am.
Q. And is that because at least one of the authors is from the University of British Columbia?
A. No. It's a very common textbook among pulmonologists and pulmonary radiologists.
Q. Dr. Primack, I'd like to call your attention to -- call your attention to this book at page 1502.
And it is an authoritative work in the field of chest medicine, the book, Doctor?
A. As I said, many pulmonologists and many chest radiologists would read this book.
Q. Doctor, I'm going to call your attention to the

second paragraph midway through, starting, unfortunately.

MR. GAYLORD: I'm going to object to reading from it without further foundation.

MR. SIRRIDGE: All right.

Q. BY MR. SIRRIDGE: Doctor, is Diagnosis of Diseases of the Chest, third edition, by Drs. Fraser and Pare and others, an authoritative treatise in the field of diagnosis of chest diseases?

A. I guess I'd ask, what exactly do you mean by, an authoritative text?

Q. I mean a text that is consulted by specialists in the field of chest medicine for guidance in the diagnosis and treatment of chest disease.

A. Yes.

Q. And it is an authoritative treatise. Thank you.

Now, Doctor, I'll call your attention to the second paragraph there, the one that's starting with, although primary carcinoma of the trachea.

A. Yes.

Q. And move down to before it says, unfortunately, and I'll read that and see if you agree with

it: Unfortunately, the tracheal air column constitutes a blind area for many radiologists.

MR. GAYLORD: Excuse me, counsel. For the record, I need to make a further objection. I don't think the foundation that you've laid is adequate. I don't think that the definition you've given for "authoritative" is the legal definition. I think -- I want that objection for the record.

If you want to let the doctor look at the passage and then ask him if he thinks that passage is authoritative, I wouldn't have any objection to it.

Q. BY MR. SIRRIDGE: Dr. Primack, have you ever consulted this book, Diagnosis of Diseases of the Chest, in your practice of chest radiology?

A. Yes, I have.

Q. And why have you consulted it?

A. It's a very thorough textbook, and as with many textbooks, there are areas that I agree with -- most of which I agree with, and other areas that I wouldn't agree with.

Q. All right, Doctor. Let me continue.

I'll start again: Unfortunately, the tracheal air column constitutes a, quote, blind

area, unquote, for many radiologists. We have seen one patient who had been followed for four years with a clinical diagnosis of asthma in whom an endotracheal neoplasm, parentheses, mucoepidermoid carcinoma, end of parentheses, was finally identified and in fact was clearly visible on several roentgenograms obtained during four years' observation.

Doctor, do you agree that that sort of diagnostic problem can exist with respect to diagnosing diseases in the trachea?

A. I agree with that. I think I would like to see the Figure, and also, it's in here that this is -- these folks have a lot of experience, and that was one case that they saw.

MR. SIRRIDGE: Thank you, Doctor.

REDIRECT EXAMINATION

BY MR. GAYLORD:

Q. Just a few questions, Doctor, to clear up one point I want to ask.

Was the person who you met at the same time you met me Chuck Tauman, who is here in the room with us?

A. Yes. I thought I'd say Charles. I thought

that was more official.
Q. He probably recognizes that when his mother calls him, but the same gentleman that I'm pointing to over here?
A. Yes.
Q. Do you happen to recall, were you referred to us in this case by a Dr. Stern?
A. Yes, I was.
Q. Who had been listed as one of the witnesses --
MR. SIRRIDGE: Objection. This is a leading question.
Q. BY MR. GAYLORD: Did you hear from Dr. Stern about this case?
A. We had a brief conversation after I had already talked with Chuck.
Q. And did you gain any understanding about whether Dr. Stern had become unavailable for testimony in this case and referred us to you?
A. Yes.
Q. You were asked a question about whether it was appropriate for someone to rule out tumor in the 1991 time frame, given some assumptions about the clinical situation at that time.
My question is, were the films that were taken at that time an appropriate way to rule

out tumor at that time?
A. Yes, they were.
Q. And do you have an opinion whether they did that?
A. I think they did. I do not see an abnormality on that 10-28-91 film.
Q. I think because you've talked about the same geography on the lateral films in the '84 film as well as the '91 film, I'm going to ask you just so the jury can be oriented to the same location: Could you put a similar arrow to the same landmarks or same location on the 1984 film?
A. (Complying.)
Q. And does that arrow that you've now placed on Exhibit 1 to the deposition point to what you referred to a little while ago as a similar-looking different shape than is on the March '86 film?
A. Yes.
Q. And you were asked a question about a blind spot or blind area in the minds of -- or in the work of some radiologists.
Is the tracheal air column a blind area for you in your practice?

A. Tough question. Yes, I think, and I would say that because statistically, there are certain areas in a chest film where tumors will be missed because of the difficulty of detection in those areas, so I would unfortunately answer that as a yes.

Q. And mindful of that concern -- let me back up.
Is that a concern that you've learned about in your subspecialty training as a reason to pay special attention and focus to that area?

A. Yes. One of the things I teach the residents is to always look at the blind spots as the last thing you do before you pull the film down. And again, just definition of a blind spot, there's a difference between a prospective blind spot and a retrospective blind spot.
And I think here we're looking at retrospectively, I would not look at this as much of a blind spot, but prospectively, clearly this would be an area that tumors can be missed.

Q. And did you have the advantage of retrospective knowledge of this tumor when you read the October 1991 film?

A. Yes, so I would know exactly where to look.
Q. And with that knowledge, did you nevertheless rule out the presence of a tumor on all of the views of October 28, 1991?
MR. SIRRIDGE: Excuse me. Objection, leading.
Q. BY MR. GAYLORD: Did you apply your knowledge, including the retrospective knowledge of Mr. Williams' lung cancer, when you read the October 1991 films?
A. Yes, I did.
MR. GAYLORD: Thank you very much.
MR. SIRRIDGE: Thank you.
THE WITNESS: Thank you.
(DEPOSITION ADJOURNED)
* * *
(NOTE: Untranscribed steno-only notes archived ten years on computer; transcribed English text files archived five years on computer.)
* * *

CERTIFICATE

I, CHERYL A. LORD, a Certified Shorthand Reporter for Oregon and a Registered Professional Reporter, do hereby certify that, pursuant to the Oregon Rules of Civil Procedure, STEVEN L. PRIMACK, M.D., personally appeared before me at the time and place mentioned in the caption herein; that the witness was by me first duly sworn or affirmed to tell the truth and examined upon oral interrogatories propounded by counsel; that said examination, together with the testimony of said witness, was taken down by me in stenotype and transcribed through computer-aided transcription; and that the foregoing transcript, review not being requested by the witness or a party, constitutes a true record of said examination of and testimony given by said witness, and of all other oral proceedings had during the taking of said examination.

Witness my hand and stamp at Portland, Oregon, this 20th day of March, 1999.

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EXAMINATION INDEX

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EXHIBIT INDEX

(Original exhibits retained by Mr. Gaylord.)

NOTE: Exhibits are not archived.

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